Papaya

a. Name of crop – **Papaya**
b. Common names – **Papaya** (Hindi); **Papaya** (Marathi),
c. Scientific name - *Carica papaya*
d. Family - **Caricaceae**
e. Origin: tropics of the Americas
f. Importance – Fruit is a rich source of vitamin A and C. It has a high nutritive and medicinal value.
   - Papain prepared from dried latex of its immature fruits is used in meat tenderizing, manufacture of chewing gum, cosmetics, for degumming natural silk and to give shrink resistance to wool.
   - It is also used in pharmaceutical industries, textile and garment cleaning paper and adhesive manufacture, sewage disposal etc.
g. Cultivation – papaya is commercially grown by seed,

h. Soil and climate

   a. Soil: - Well-drained loamy soils are ideally-suited though it can be grown on a wide variety of soils.
   
   - pH high 8.0 and low 5.0
   
   - soil shouldn’t much acidic
   
   **climate:** - Tropical fruit
   
   - Night and day temperature of 120-140c.
   
   - 200c-300c is good for seed germination

b. Season of planting : Papaya is planted during spring (February-March), monsoon (June-July) and autumn (October-November).

C. Varieties : Varieties in Konkan region: Coorg venidue Co-1,Co-2, Co-7,Pusa,etc.

   ❖ Varieties in UKSS region: Washington
   ❖ Mainly Grown in: Maharashtra, Papaya is mostly cultivated in the states of Andhra Pradesh, Karnataka, Gujarat, Orissa, West Bengal, Assam, Kerala, Madhya Pradesh.

d. Methods of cultivation-.Generally 15-20 cm tall seedlings become ready for planting in about two months.
Nursery bed preparation:
- The seedlings can be raised in nursery beds 3m long, 1m wide and 10cm high as well as in pots or polythene bags.
- The seeds should be sown 1cm deep in rows 10 cm apart and covered with fine compost of leaf mould. Light watering should be done with water can in the morning.
- The nursery beds may be covered with polythene sheet of dry paddy straw to protect seedlings.

Light watering should be done with water can in the morning. The nursery beds may be covered with polythene sheet of dry paddy straw to protect seedlings. Polythene bags of 20 cm x 15 cm size of 150-200 gauge can be used as a container.

e. Seed rate — 250-300g seeds are sufficient for a hectare.

f. Spacing: - A spacing of 1.8 x 1.8 m. is normally followed. However higher density cultivation with spacing of 1.5 x 1.5 m./ha enhances the returns to the farmer and is recommended.

High Density Planting: A closer spacing of 1.2 x 1.2 m. for cv. Pusha Nanha is adopted for high density planting, accommodating 6,400 plants/ha.

g. Land preparation- In the summer months the pits are dug about a fortnight before planting.
- The pits are filled with top soil along with 20 kg. of farmyard manure., 1 kg. neem cake and 1 kg. bone meal.
- Tall and vigorous varieties are planted at greater spacing while medium and dwarf ones at closer spacing.

Yield: 60-75 tons/ha may be expected in a season from an orchard of papaya.

h. Sowing / planting:

Pit formation: pits of 60x60x60 cm. size.

Distance: 1.8 x 1.8 m. , for high density : 1.2 x 1.2 m

i. Fertilizer Management :- Papaya plant needs heavy doses of manures and fertilizers.
- Apart from the basal dose of manures (@ 10 kg./plant) applied in the pits, 200-250 g. each of N, P2O5 and K2O are recommended for getting high yield.
- Application of 200 g. N is optimum for fruit yield but Papain yield increases with increase in N upto 300 g.

- Deficiency of lime and boron has often been observed in papaya orchards. Spraying of 0.5% zinc sulphate (twice) and one spray of Borax (0.1%) may be done depending upon the nutrient status of soil.

**Micro-nutrients** viz. ZnSO₄ (0.5%) and H₂ BO₃ (0.1%) are sprayed in order to increase growth and yield characters.

i. **Interculture operations:**

a. **Water management:**

- The irrigation schedule is fixed on the basis of soil type and weather conditions of the region.
- Protective irrigation is provided in the first year of planting.
- During the second year, irrigation is provided at fortnightly interval in winter and at an interval of 10 days in summer.
- Basin system of irrigation is mostly followed.
- In areas having low rainfall, sprinkler or drip system can be adopted.

b. **Crop protection** –

**Pest:** The insect pests mostly observed are fruit flies (*Bactrocera cucurbitae*), aphids (*Aphis gossypii*), red spider mite (*Tetranychus cinnabarinus*), stem borer (*Dasyses rugosellus*) and grey weevil (*Myllocerus viridans*).

In all cases the infected parts need to be destroyed along with application of prophylactic sprays of Dimethoate (0.3%) or methyl demeton (0.05%).

**Diseases:**

- The main diseases reported are powdery mildew (*Oidium caricae*), anthracnose (*Colletotrichum gloeosporioides*), damping off and stem rot.
- Application of wettable sulphur (1 g./l.) carbendazim/thiophanate methyl (1 g./l.) and Kavach/Mancozeb (2 g./l.) has been found to be effective in controlling the diseases.

**Earthing up** is done before or after the onset of monsoon to avoid water-logging and also to help the plants to stand erect.

**d. Weed management:**

- Deep hoeing is recommended during the first year to check weed growth.
- Weeding should be done on regular basis especially around the plants.
e. **Intercropping:** Intercropping leguminous crops after non-leguminous ones, shallow rooted crops after deep rooted ones are beneficial. No intercrops are taken after the onset of flowering stage.

f. **Harvesting & post harvest processing:** Fruits are harvested when they are of full size, light green in colour with tinge of yellow at apical end.
   - On ripening, fruits of certain varieties turn yellow while some of them remain green. When the latex ceases to be milky and become watery, the fruits are suitable for harvesting.
   - The economic life of papaya plant is only 3 to 4 years.

g. **Post harvest processing** –
   - **YIELD:** The yield of 75-100 tonnes /ha. is obtained in a season from a papaya orchard depending on spacing and cultural practices.
   - **Grading**
   - Fruits are graded on the basis of their weight, size and colour.
   - **Storage**
   - Fruits are highly perishable in nature. They can be stored for a period of 1-3 weeks at a temperature of 10-130 C and 85-90% relative humidity.
   - **Packing**
   - Bamboo baskets with banana leaves as lining material are used for carrying the produce from farm to local market.
   - **Transportation**
   - Road transport by trucks/lorries is the most convenient mode of transport due to easy approach from orchards to the market.

h. **Market availability:** Local Market and large market also available in the India. Road transport by trucks is the most popular mode of transport due to easy approach from orchards to the market. Marketing of the produce is mainly controlled by intermediaries like wholesalers and commission agents.